

Terrestrial Isopod and Amphipod Crustaceans from the Imperial Palace, Tokyo¹⁾

By

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Introduction

The Imperial Palace is the most valuable place where the undisturbed nature of native Tokyo has remained in the central area of metropolitan Tokyo. Hitherto, only 2 species of the isopod crustaceans have been recorded from here (Nunomura, 1987). Recently, a series of study has been carried from 1996 to 2000 under the special project organized by the National Science Museum, Tokyo.

Almost all the specimens including all the holotypes are deposited at the National Science Museum, Tokyo, and some paratypes are deposited at the Toyama Science Museum.

Results

Sixteen species of isopods and two species of amphipods were collected, including 4 new species. Of these, *Venzillo obscurus* (Budde-Lund) of the Armadillidae (Isopoda), *Haplophtalmus danicus* Budde-Lund of the Trichoniscidae (Isopoda), *Platochestia humida* (Martens) of the Talitridae (Amphipoda) are most dominant. Four species are described as new to science: *Styloniscus japonicus* (Styloniscidae), *Papuaphilosia alba* (Philosciidae), *Lucasioides tokyoensis* and *L. nebulosus* (Trachelipidae).

Almost all the species are considered to be the native species, but a representative urban species, *Porcellio scaber* has not been discovered from the Imperial Palace, which is regarded as the second commonest in the urban area of Tokyo.

Order Isopoda

Family Ligiidae

***Ligidium japonicum* Verhoeff, 1918**

Ligidium japonicum Verhoeff, 1918, p. 114; Nunomura, 1983, pp. 36–37, fig. 7.

Specimens examined. Fukiage, main gate, Oct. 10, 14, 1998, 1 ♂ 4 ♀, K. Ishii leg.; Fukiage, east of Kajuen, May 15, 1996, 1 ♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Mar. 11, 1998, 1 ♂ 1 ♀, S. Nomura leg.; Fukiage, Sakurabayashi, Oct. 14, 1998, 4 ♂ 6 ♀, K. Ishii leg.; Fukiage, Sakurabayashi, Mar. 11, 1998, 1 ♀, K. Ishii leg.; Fukiage, Sakurabayashi, Mar. 2, 2000, 2 ♂ 13 ♀, K. Ishii leg.; Fukiage,

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Sakurabayashi, Jan. 7, 1998, 1 ♂12 ♀, K. Ishii leg.; Fukiage, Chushunkaku-ato, Oct. 18, 1997, 1 ♀, N. Nunomura leg.; Fukiage, stream in front of Kanbakutei, July 9, 1979, 4 ♀, K. Ishii leg.; Kami-dokanbori, Mar. 7, 1998, 2 ♂5 ♀, S. Nomura leg.; Kami-dokanbori, Apr. 7, 1998, 1 ♀, S. Nomura leg.; Kami-dokanbori, west slope, Apr. 24, 1996, 1 ♂1 ♀, N. Nunomura leg.; Road between Naka-dokanbori and Shimo-dokanbori, Sep. 18, 1997, N. Nunomura leg.; Bamboo stand in front of Gosho, Oct. 14, 1998, 1 ♀, K. Ishii leg.; Bamboo stand in front of Gosho, July 23, 1998, 2 ♂6 ♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 21, 1997, 1 ♂3 ♀, K. Ishii leg.; Gosho, *Quercus acutissima* forest, Oct. 14, 1998, 12 ♂32 ♀, K. Ishii leg.

Distribution. From Hokkaido to Shikoku (Nunomura, 1983, 1999).

Family Trichoniscidae

Haplophthlmus danicus Budde-Lund, 1879

Haplophthlmus danicus Budde-Lund, 1879, p. 9; Nunomura, 1983, pp. 63-65, fig. 27.

Specimens examined. Fukiage, main gate, Oct. 10, 14, 1998, 20 ♀ (including 1 ovig. ♀), K. Ishii leg.; Fukiage, east of main gate, Apr. 24, 1996, 1 ♂2 ♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Mar. 11, 1998, 2 ♂7 ♀, S. Nomura leg.; Fukiage, Sakurabayashi, Apr. 26, 1998, 6 ♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Mar. 2, 2000, 16 ♀, K. Ishii leg.; Fukiage, Sakurabayashi, Mar. 11, 1998, 3 ♂16 ♀, K. Ishii leg.; Fukiage, Sakurabayashi, Apr. 26, 1998, 6 ♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Jan. 7, 1998, 2 ♂11 ♀, K. Ishii leg.; Fukiage, between Sakurabayashi and west road, Apr. 26, 1996, 1 ♂2 ♀, N. Nunomura leg.; Fukiage, Daihon'ei-ato, Mar. 11, 1998, 11 ♂39 ♀, K. Ishii leg.; Fukiage, Chushunkaku-ato, Jan. 7, 1998, 3 ♂18 ♀, K. Ishii leg.; Fukiage, Chushunkaku-ato, Oct. 18, 1997, 1 ♂1 ♀, N. Nunomura leg.; Fukiage, middle area of Fukiage-nishidori, Mar. 17, 1997, 2 ♂4 ♀, N. Nunomura leg.; Fukiage, stream in front of Kanbakutei, July 9, 1997, 4 ♂11 ♀, K. Ishii leg.; Fukiage, south area of Fukiage-nishidori, Mar. 17, 1997, 1 ♂8 ♀, N. Nunomura leg.; Fukiage, south area of Fukiage-nishidori, Oct. 8, 1997, 2 ♀, N. Nunomura leg.; Fukiage, Ikejiri, Oct. 18, 1997, 3 ♀, N. Nunomura leg.; Fukiage, Hakuchobori, June 12, 1997, 1 ♂8 ♀, N. Nunomura leg.; Fukiage, path between Hakuchobori and Yamabuki-Iraka, May 15, 1997, 1 ♂1 ♀, N. Nunomura leg.; Fukiage, Ooibaba-ato, Oct. 8, 1998, 10 ♀, N. Nunomura leg.; Fukiage, near Kankatei, Oct. 8, 1998, 3 ♀, N. Nunomura leg.; Fukiage, Kanbakutei-ato, Mar. 17, 1997, 1 ♂3 ♀, N. Nunomura leg.; Fukiage, Seimon (main gate), July 9, 1979, 4 ♂9 ♀14 ovig. ♀, K. Ishii leg.; Fukiage, bamboo stand, Nov. 20, 1996, 2 ♀, S. Nomura leg.; Fukiage, bamboo stand, June 12, 1996, 1 ♀, S. Nomura leg.; Fukiage, Jujiro, Apr. 24, 1996, 1 ♀, N. Nunomura leg.; Fukiage, waterfall side, June 26, 1996, 1 ♀, S. Nomura leg.; Kami-dokanbori, southeast area, Aug 17, 1997, 1 ♂29 ♀, N. Nunomura leg.; Kami-dokanbori, east slope, north of Mikenno-soko, June 8, 1998, 3 ♂1 ♀4 ovig. ♀ (up to 8 eggs), N. Nunomura leg.; Kami-dokanbori, Mar. 11, 1998, 5 ♀, K. Ishii leg.; Kami-dokanbori, southwest area, Apr. 24, 1996, 1 ♂11 ♀, N. Nunomura leg.; Naka-dokanbori, Sep. 18, 1997, 1 ♂1 ♀, N. Nunomura leg.; Naka-dokanbori, along Naienbori, Mar. 21, 1997, 1 ♂2 ♀, K. Ishii leg.; Road between Naka-dokanbori and Fukiage Ohmiya-gosho, Sep. 18, 1997, 1 ♀, N. Nunomura leg.; Bamboo stand in front of Gosho, Mar. 11, 1998, 8 ♂24 ♀, K. Ishii leg.; Bamboo stand in front of Gosho, Oct. 14, 1998, 5 ♂18 ♀4 ovig. ♀, K. Ishii leg.; Bamboo stand in front of Gosho, July 23, 1998, 3 ♂28 ♀6 ovig. ♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 21, 1997, 2 ♂19 ♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 11, 1998, 28 ♀, K. Ishii leg.; Gosho, *Quercus acutissima* forest, Oct. 14, 1998, 2 ♂8 ♀2 ovig. ♀, K. Ishii leg.; Road between Naka-dokanbori and Shimo-dokanbori, Sep. 18, 1997, 1 ♀, N.

Nunomura leg.; East road of Naka-dokanbori, Sep. 18, 1997, 4 ♂ 30 ♀, N. Nunomura leg.; Goseiken, Sep. 18, 1997, 3 ♂ 10 ♀, N. Nunomura leg.; Oudori, Mar. 17, 1997, 4 ♀, N. Nunomura leg.; East of Sagyosho, June 8, 1998, 1 ♂ 12 ♀ 1 ovig. ♀, N. Nunomura leg.

Distribution. Europe, North America, Asia Minor, and Japan (Nunomura, 1983, 1999).

Family Styloniscidae

This is the first record of this family from Japan.

Styloniscus japonicus sp. nov.

(Fig. 1)

Specimens examined. Fukiage, south area of Fukiage-nishidori, 12 ♂ (1 ♂ holotype, 3.0 mm in body length, NSMT Cr-13531, and 11 ♂ paratypes, 2.7–3.0 mm in body length, NSMT Cr-13535, TOYA Cr-12824–12828) and 17 ♀ (1 ♀ allotype, 3.0 mm in body length, NSMT Cr-13532, and 16 ♀ paratypes, 2.5–2.9 mm in body length, NSMT Cr-13535, TOYA Cr-12829–12832), Mar. 17, 1997, N. Nunomura leg.

Description. Male. Body 2.5 times as long as wide. Color reddish brown on dorsal side. Eyes, each

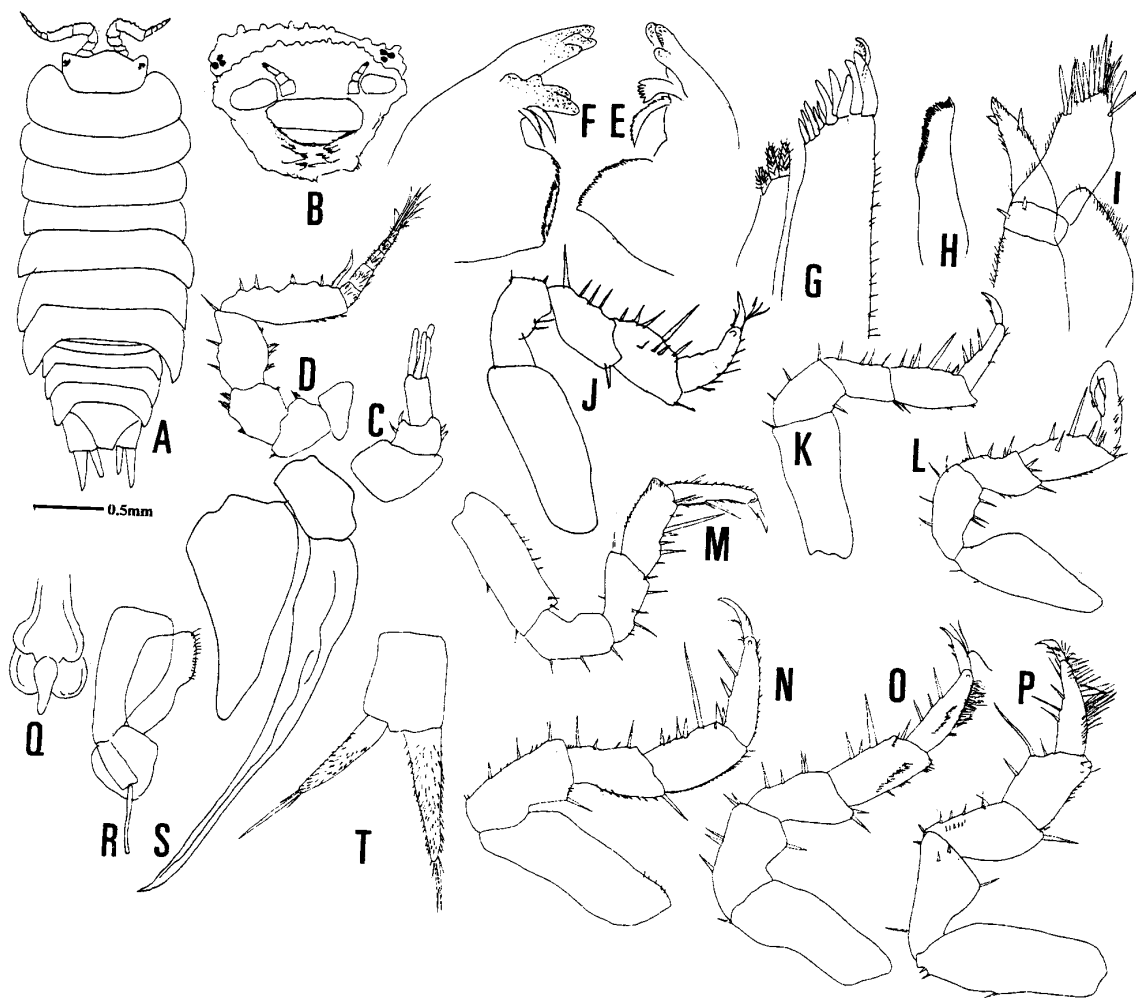


Fig. 1. *Styloniscus japonicus* sp. nov., holotype ♂. A: Dorsal view. B: Frontal view of cephalon. C: Antennule. D: Antenna. E: Right mandible. F: Left mandible. G: Maxillula. H: Maxilla. I: Maxilliped. J-P: Pereopods I-VII. Q: Penis. R: Pleopod I. S: Pleopod 2. T: Uropod.

with 3 ommatidia, situated rather closely. Pleotelson truncated on posterior margin. Antennula: first segment stout; second segment narrower than the first, with several setae on lateral margin; terminal segment slender, with 3-4 aesthetascs at tip. Antenna, reaching the posterior margin of pereonite 1, composed of 5 peduncular segments and 5 flagellar segment; flagellar segment sub-equal in length and all with many setae. Right mandible: pars incisiva 3-toothed; lacinia mobilis slender, 6-toothed; a hairy seta; processus molaris wide. Left mandible: pars incisiva 3-toothed; lacinia mobilis 3-toothed; a hairy seta; processus molaris wide. Maxillula: inner lobe with 3 plumose setae; outer lobe with 11 simple teeth at tip. Maxilla relatively narrow. Maxilliped: endite slender, with 2 spines and many fine setae; first palpal segment with 2 setae and other palpal segments fused. Pereopod 1: basis rectangular, 3 times as long as wide; ischium half length of basis, with 2 setae on both margins; merus a little shorter than ischium, with 4 long setae on inner margin and a seta at outer distal angle; carpus as long as merus, with 5 setae (including one longer seta) on inner margin and 3-4 setae on lateral margin; propodus with 2 long setae on inner margin and 3-4 setae on outer margin. Pereopod 2: basis rectangular, 2.6 times as long as wide, with a short seta at inner distal angle; ischium with 5-6 setae on inner margin and a seta at outer margin; merus a little shorter than ischium, with 5 setae on inner margin and 2 setae at outer distal angle; carpus a little longer than merus, with 5 setae on inner margin, one of them being obviously longer than the others; propodus with 3 setae on inner margin and many setae on outer margin; dactylus with 3 long setae on outer margin. Pereopod 3: basis with 3 setae on inner margin; ischium with 4 setae on inner margin and 3 seta on inner margin; merus shorter than ischium, with 4 setae on inner margin, 2 setae on distal margin, 3-4 setae on outer margin; carpus 3 setae on inner margin, a long seta at inner distal angle, 5-6 setae on distal angle; propodus with 2 setae on inner margin. Pereopod 4: basis with 2 setae on inner margin and 9-10 short setae on outer margin; ischium with 3 setae on inner margin; merus a little shorter than ischium, with 4-6 setae on inner margin and a seta at outer distal angle; carpus with 7-8 setae on inner margin, one of them being very long; propodus with many short setae on basal half of inner margin and a seta near its middle area of inner margin; dactylus with 2 setae. Pereopod 5: basis 2.6 times as long as wide, with a seta at inner distal angle; ischium $7/10$ as long as basis, with 3 longer and 4-6 shorter setae on inner margin and a long some short setae near the outer distal angle; merus $2/3$ as long as ischium, with 2 longer and 2 shorter setae on inner margin and a long seta at outer distal angle, and many short setae along medial area; carpus a little longer than merus, with 5-6 setae and a long seta on inner margin; propodus again a little longer than carpus, with 2 setae on inner margin. Pereopod 6: basis 2.2 times as long as wide, with a seta at inner distal angle; ischium $3/5$ as long as basis, with 5 setae on inner margin and a seta on sternal margin; merus $4/5$ as long as merus, with 5 setae on inner margin and 2 setae at outer distal angle; carpus a little longer than merus, with 5 setae on inner margin, one of them being much longer than the others, and many short setae on lateral margin; propodus with 3 long setae on inner margin and many setae on distal area. Pereopod 7: basis twice as long as wide; ischium spread toward tip with a seta on inner margin and a seta at pouter distal end; merus half length of ischium, with 2-3 setae on inner margin and 2-3 setae at outer distal angle; carpus almost as long as merus, with 3 setae on inner margin and 8-12 short setae on outer margin; propodus a little longer than carpus with 4-5 setae on inner margin and many dense hair on outer marginal area. Penes relatively short but stout, with an acute protrusion. Pleopod 1: basis stout; endopod 2-segmented; exopod almost equal, elongated triangular. Pleopod 2: endopod slender; exopod elongated triangular. Uropod: basis rectangular; endopod a little shorter than exopod, with many setae around lateral margin and a long setae at tip; exopod with many setae on lateral margin and some long setae at tip.

Etymology. The species name is derived from the type locality, Japan.

Distribution. Type locality.

Remarks. The present new species is most closely allied to *S. nicholli* (Vandel, 1952) from northwest Tasmania, especially in having a round penes, arrangement of 3 ommatidia of eye. But the former is separated from the latter by the following features: (1) simpler endopod of male second pleopod, (2) shorter distal area of endopod of male first pleopod, (3) more numerous flagellar segments of antenna, (4) fewer aesthetascs at tip of antennule, (5) less complicated medial process of penes, (6) longer setae on propodus of male seventh pereopod, (7) fewer teeth of outer lobe of maxillula, and (8) fewer setae at tips of both appendages.

Hitherto almost all the species of the family Styloniscidae have been reported from Southern Hemisphere and Tropical area (Vandel, 1952). This is the first record of the family Styloniscidae from Japan and perhaps the second record from East Asia (Schultz, 1995).

Family Philosciidae

Papuaphiloscia alba sp. nov.

(Fig. 2)

Specimens examined. Kami-dokanbori, southeast slope, 1 ♂ (holotype, 2.9mm in body length, NSMT Cr-13534), and 1 ♀ (allotype, 3.0mm in body length, NSMT Cr-13535), Apr. 24, 1996, N. Nunomura leg.; Bamboo stand in front of Gosho, June 12, 1996, 1 ♀ (paratype, 4.0mm in body length, TOYA Cr-12833), N. Nunomura leg.

Description. Body 3.3 times as long as wide. Color white. Eyes lacking. Cephalon rounded. Posterior margin of pleotelson with round postero-medial area. Antennule: first and second segments square, third segment rectangular, with 2 aesthetascs at its tip. Antenna, reaching pereonite 2 and mutual length of 3 peduncular segments and 5 3 flagellar segments; mutual length of 3 flagellar segments being 7: 5: 8. Right mandible: pars incisiva 5-toothed; lacinia mobilis thin, 2-toothed; 2 hairy setae; processus molaris represented by a single tuft of seta. Left mandible: pars incisiva 3-toothed; lacinia mobilis 3-toothed with a hairy seta; processus molar represented by single seta. Maxillula: inner lobe with 2 plumose setae; outer lobe with 8 simple and relatively long teeth at tip. Maxilla wide, with relatively narrow dental area. Maxilliped: endite rectangular with 2 spurs on outer distal area and a palp. Positions of noduli lateralis are as follows:

	d/c	b/c
1	0.06	0.82
2	0.08	0.48
3	0.09	0.41
4	0.25	0.62
5	0.11	0.38
6	0.20	0.10
7	0.12	0.26

Pereopod 1: basis rectangular, 3.0 times as long as wide; ischium half length of basis; merus a little shorter than ischium, with 5 relatively long setae on inner margin and 1-2 setae on outer margin; carpus as long as merus with 4 long and 5-6 short setae on inner margin and with many setae on distal half; propodus 2/3 as long as carpus, with dense setae on inner distal area. Pereopods 2-5: basis about 2.5 times as long as wide, with several short setae on margins; ischium shorter than half of basis, 4-6 setae on

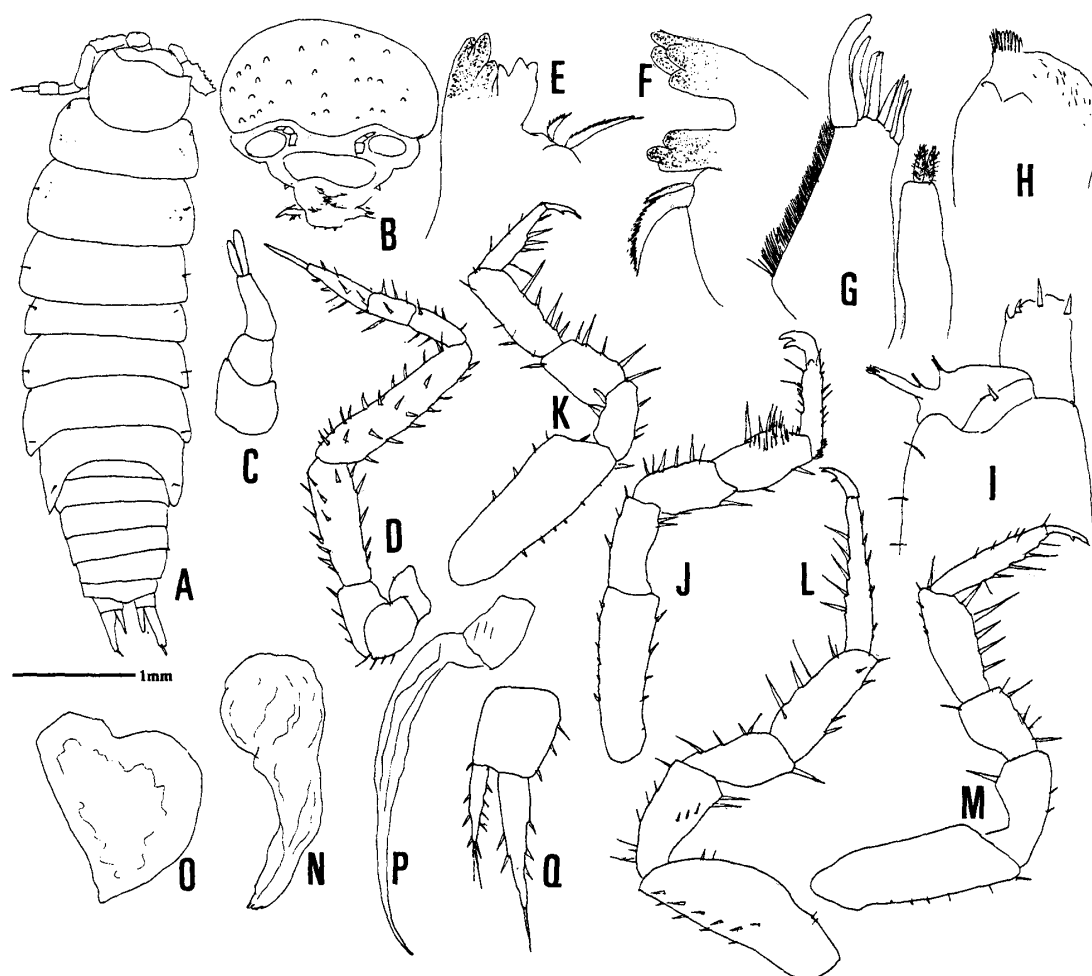


Fig. 2. *Papuaphiloscia alba* sp. nov., paratype ♀ (A), holotype ♂ (B-Q). A: Dorsal view. B: Frontal view of Cephalon. C: Antennule. D: Antenna. E: Right mandible. F: Left mandible. G: Maxillula. H: Maxilla. I: Maxilliped. J: Pereopod 1. K: Pereopod 2. L: Pereopod 6. M: Pereopod 7. N: Endopod of male pereopod 1. O: Exopod of the same. P: Endopod of male pereopod 2. Q: Uropod.

inner margin and 1-2 setae on outer margin; merus almost as long as ischium, with 5-10 setae on inner margin; carpus 1.5 times as long as merus, with about 6 relatively long setae on inner margin and 3-5 shorter setae on outer margin; propodus a little shorter than carpus, with 4-5 longer setae on inner margin and 4 shorter setae on outer margin. Pereopod 6 : basis 2.6 times as long as wide with 2 rows of 5 short setae on inner margin; ischium 55% as long as basis, with 6 setae on inner margin and 2 relatively long setae on outer margin; merus 0.7 time as long as ischium, with 4 setae on inner margin and a seta at outer distal angle; carpus as long as ischium, with 4-5 relatively long setae on inner margin and 4-5 setae on outer margin; propodus a little longer than carpus, with 5 long setae on inner margin and 5 short setae on outer margin. Pereopod 7 : basis rectangular, 3 times as long as wide, with 4 relatively short setae on inner margin and a seta near the distal outer corner; ischium 2/3 as long as basis, with 3 setae on inner margin; merus also 2/3 as long as ischium, with 3 setae on inner margin and a relatively long setae at outer distal angle; carpus rectangular, almost as long as ischium, with 4 long setae on inner margin and some short setae on inner margin and several short setae on outer distal area; propodus a little shorter than carpus, with 5-6 setae on inner margin and 4 setae on outer margin; dactylus with a sensory seta. Uropod:

basis almost subsquare, with 3 setae on outer margin; endopod as long as basis, with 2-3 setae on inner margin and 4-5 setae on outer margin, and 3 setae at tip; exopod nearly twice as long as endopod, with 2 setae on inner margin and a tuft of setae at tip.

Male. Pereopods without particular modifications. Pleopod 1: endopod straight, apical slightly recurved outwards and with 2 minute spinules; exopod triangular with slightly pointed at the distal area. Pleopods 2: endopod tapering towards the tip; exopod.

Etymology. Albus= white in Latin.

Distribution. Type locality.

Remarks. The present new species is most closely allied to *Papuaphiloscia insulana* Vandel, 1970 from Okinoerabu Island and Amami Islands. The former is, however, separated from the latter by the following features: (1) less elongated body, (2) nearer position of noduli lateralis on pereonal somite 4, (3) acuter endopod of male pleopod 2, (4) longer setae on pereopods, (5) acuter spurs on maxilliped, and (6) less protruded medial projection of pereopods.

Family Oniscidae

Exalloniscus cortii Arcangeli, 1927

(Fig.3)

Exalloniscus cortii Arcangeli, 1927, pp. 263-266, fig. 21; Nunomura, 1983 pp. 68-69, fig. 98.

Specimens examined. Fukiage, Kanbakutei, June 12, 1996, 1 ♂ (2.8 mm in length), N. Nunomura leg.; Kami-dokanburi, underside of stone, June 12, 1996, 1 ♀, S. Nomura leg.

Distribution. Japan, Korea, China (Taiti & Ferrara, 1988).

Remarks. The present specimen agrees with the original description (Arcangeli, 1927), but differs in the following features: (1) presence of eyes, each with 6-7 ommatidia, which are rather distinct, (2) pres-

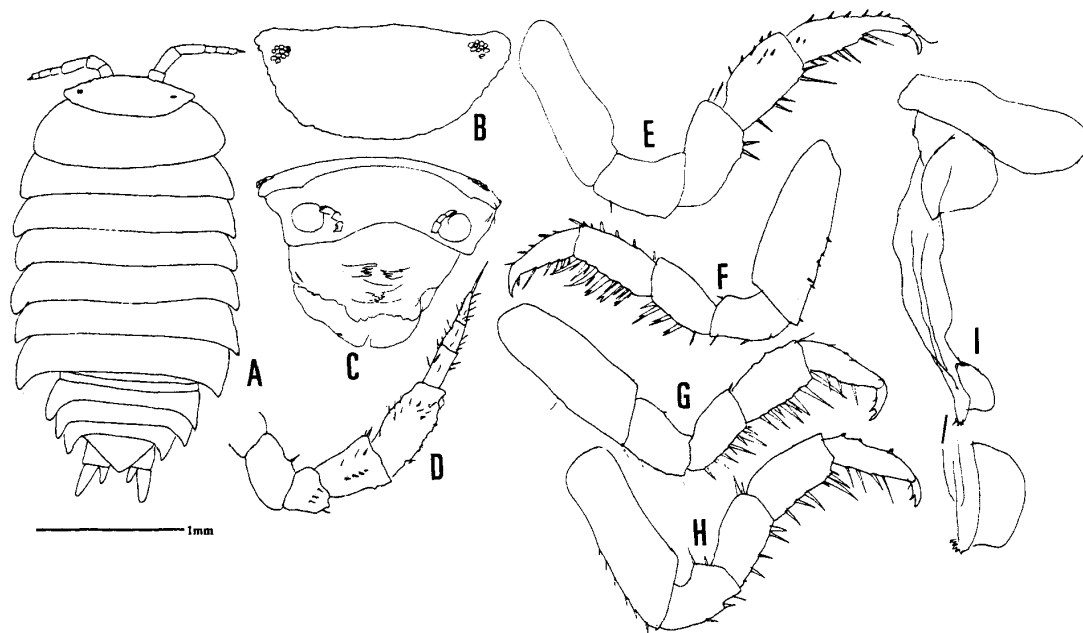


Fig. 3. *Exalloniscus cortii* Arcangeli, 1927. A: Dorsal view. B: Cephalon. C: Frontal view of cephalon. D: Antenna. E: Pereopod 1. F: Pereopod 3. G: Pereopod 4. H: Pereopod 5. I: Endopod of male first pleopod.

ence of lateral projection of cephalon, (3) presence of small spinules on the tip of male first, and (4) somewhat rectangular lappet of male first pleopod.

Family Trachelipidae

Lucasioides tokyoensis sp. nov.

(Fig.4)

Specimens examined. Shimo-dokanbori, 2 ♂ (1 ♂ holotype, 5.2mm in body length, NSMT Cr-13536, and 1 ♂ paratype, 5.1mm in body length, TOYA Cr-12384), and 3 ♀ (1 ♀ allotype, 7.5mm in body length, NSMT Cr-13537, and 2 ♀ paratypes, 5.3-5.5mm in body length, NSMT Cr-13538, TOYA Cr-12835), Apr. 24, 1996, S. Nomura leg.; Fukiage, Hakuchobori, June 12, 1996, 1 ♀, N. Nunomura leg.; Kami-

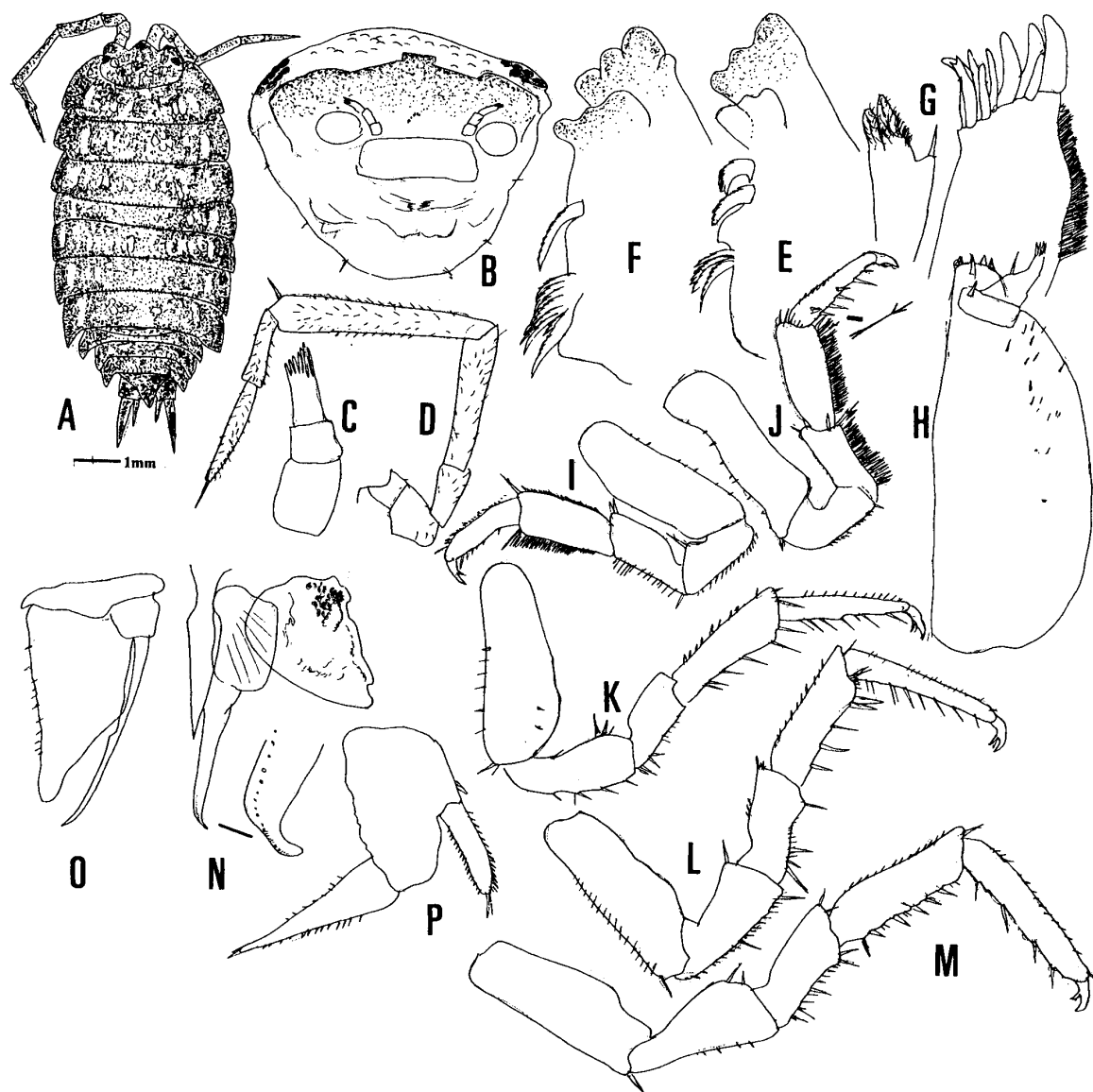


Fig. 4. *Lucasioides tokyoensis* sp. nov., holotype ♂. A: Dorsal view. B: Frontal view of cephalon. C: Antennule. D: Antenna. E: Right mandible. F: Left mandible. G: Maxillula. H: Maxilliped. I: Pereopod 1. J: Pereopod 2. K: Pereopod 5. L: Pereopod 6. M: Pereopod 7. N: Penes and pleopod 1. O: Pleopod 2. P: Uropod.

dokanbori, Sep. 17, 1997, 1 ♂ 2 ♀, N. Nunomura leg.

Description. Male. Body 2.0 times as long as wide. Color brown, with a pair of longitudinal lateral and many irregular paler patterns on dorsal side. Medial process rectangular and protruded anteriorly. Eyes, each eye with 13 ommatidia. Antennula with 7 aesthetascs at tip of terminal segment. Antenna long, reaching middle part of pereonite3, and brown in color; mutual length of 2 flagellar segment being 3:5. Right mandible: pars incisiva 3-toothed; lacinia mobilis weakly 3-toothed; processus molaris represented by a single tuft of setae. Left mandible: pars incisiva 4-toothed; lacinia mobilis weakly 3-toothed; processus molaris represented by a tuft of setae. Maxillula: inner lobe with 2 hairy setae and an acute posterior point; outer lobe with 10 teeth, one of them being bifid and other 9 being simple. Maxilla wide. Maxilliped: endite rectangular, with 4 spurs on outer distal area, and palp with a spur on basal segment. Positions of noduli lateralis are as follows:

	d/c	b/c
1	0.09	0.38
2	—	—
3	—	—
4	—	—
5	0.17	0.42
6	0.12	0.35
7	0.10	0.12

(Noduli lateralis on pereopods 2-4 could not be confirmed)

Pereopod 1: basis rectangular, 2.8 times as long as wide, with several short setae on inner margin; ischium 55% as long as basis, with 2 setae on outer margin, and about 20 short setae on inner margin; merus with many long setae on inner margin and 2 setae at outer distal angle; carpus a little longer than merus, with many long, bifid setae on inner margin; propodus slightly shorter and narrower than carpus, with 5 stout setae on distal half of inner margin and many short setae on outer margin. Pereopod 2: basis 3.7 times as long as wide, with a seta at inner distal angle; ischium about half the length of basis, with many short setae on inner margin; merus as long as ischium, with many long setae on inner margin and a seta at outer distal angle; carpus with many long setae on inner margin including trifurcated one and 6-7 setae on distal margin; propodus with 7 setae on inner margin and several setae on lateral side. Pereopod 3: basis rectangular 3 times as long as wide, with a seta at inner distal angle; ischium 2/5 as long as basis, with several setae on both margins; merus as long as ischium, with more than 20 setae on inner margin; carpus 1.2 times longer than merus, with 17-18 setae on inner margin; propodus a little shorter than carpus, with 5 setae on inner margin and many setae on lateral borders. Pereopod 5: basis 3.0 times as long as wide, with 6-7 short setae on 9 inner margin and a seta at outer distal angle; ischium 2/3 as long as basis, with 5 setae on inner margin and 3 setae on outer margin; merus half as long as ischium; carpus about twice as long as merus, with 5-6 long setae on inner margin, 2-3 long setae on distal margin, and 9-10 setae on outer margin; propodus almost as long as carpus, with 7-8 setae on inner margin and about 13 setae on outer margin. Pereopod 6: basis 2.8 times as long as wide, with a seta at inner distal angle; ischium 2/3 as long as basis, with 22 long setae; merus a little shorter than merus, with 4-5 longer and many shorter setae on inner margin; carpus a little longer than merus, with 5 setae on inner margin, a group of several short setae on inner distal area and about 12 short setae on outer margin; propodus with 9-10 setae on inner margin and 20-25 short setae on outer margins. Pereopod 7: basis 2.8 times as long as wide, with a seta on inner distal angle; ischium slightly shorter than basis, with a seta of outer distal

angle; merus $3/5$ as long as ischium, with 4-5 longer and many shorter setae on inner margin and 2 setae at outer distal angle; carpus 1.5 times as long as merus, with 8 stout setae and several short setae and a seta at outer distal angle; propodus 1.2 times as long as carpus, with 4 longer and several shorter setae on inner margin. Penes fusiform with pointed tip. Pleopod 1: endopod straight, distal area bents outwards, with a series of tiny spinules; exopod with a shallow and small concavity of outer margin of near the distal end. Pleopod 2: basis short; endopod straight, tapering toward tip; exopod triangular, with 12 short setae on distal margin. Pleopod 3: basis endopod exopod triangular, with 20-21 spinules on outer margin. Pleopod 4: exopod triangular, with 19-20 spinules on outer margin. Pleopod 5: endopod triangular, with 6 spines on outer margin; exopod rectangular. Uropod: basis rectangular, with some setae on inner distal area; endopod 1.7 times longer than exopod.

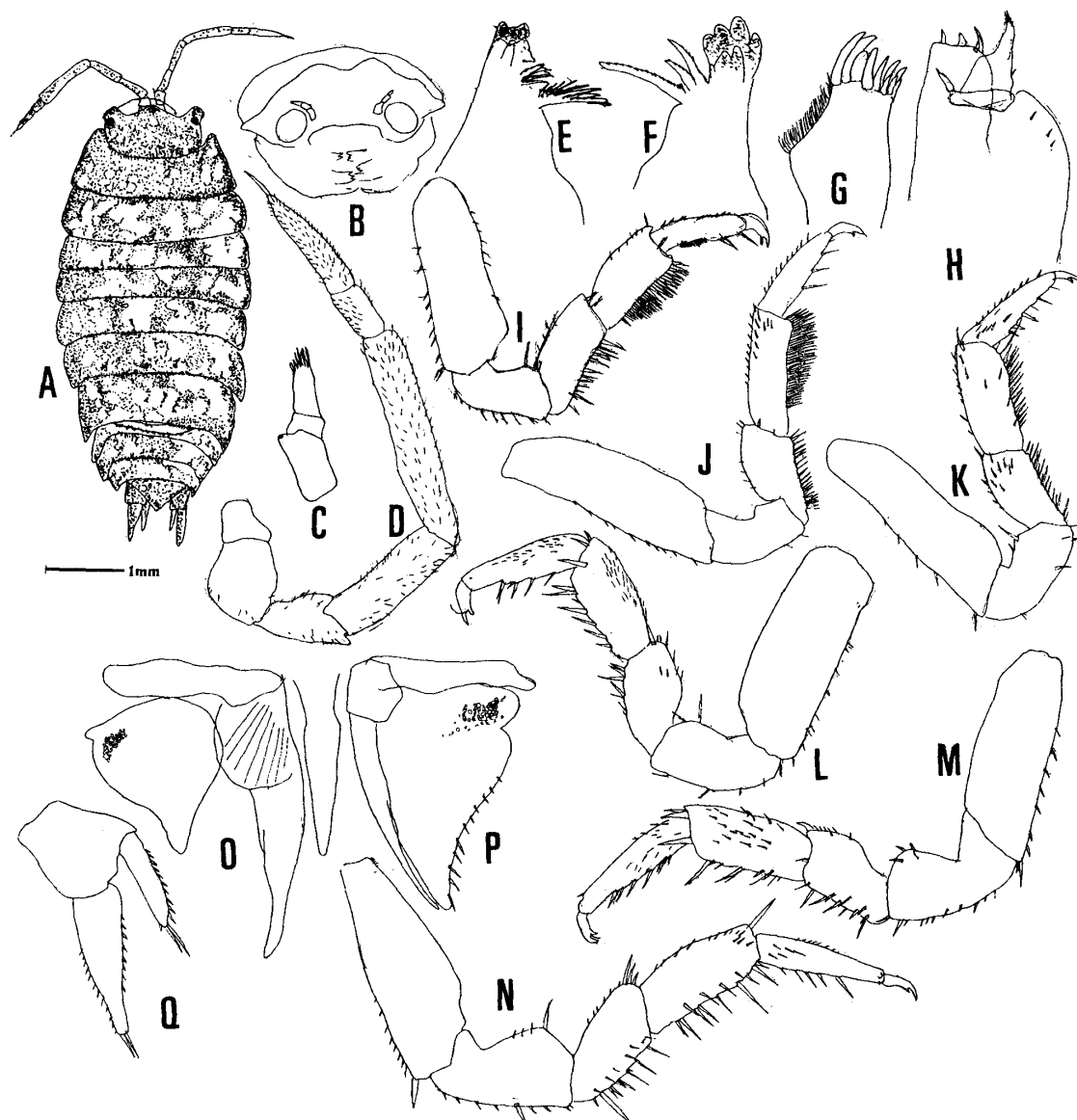


Fig. 5. *Lucasioides nebulosus* sp. nov., holotype ♂. A: Dorsal view. B: Frontal view of cephalon. C: Antennule. D: Antenna. E: Right mandible. F: Left mandible. G: Outer lobe of maxillula. H: Maxilliped. I-K: Pereopods 1-3. L-N: Pereopods 5-7. O: Penes and pleopod 1. P: Pleopod 2. Q: Uropod.

Etymology. The name is derived from type locality, Tokyo

Distribution. Type locality.

Remarks. The present new species is most closely allied to *Lucasioides sinuosus* (Nunomura, 1987) from Kochi Prefecture, Shikoku, western Japan in sharing the sinuate hind lateral margin of pereonite 1, but separated from the latter by the following features: (1) shorter body, (2) relatively longer basal flagellar segment of antenna, (3) fewer hairy setae on left mandible, (4) more numerous aesthetascs of antennule, (5) presence of bifurcated teeth on outer lobe and pointed area of inner lobe of maxillula, and (6) smaller spurs on maxilliped.

***Lucasioides nebulosus* sp. nov.**

(Fig. 5)

Specimens examined. Naka-dokanbori, area along the Naïen, 1 ♂ (holotype, 5.6mm in body length, NSMT Cr-13539), and 1 ♀ (allotype, 5.6mm in body length, NSMT Cr-13540), Mar. 21, 1997, K. Ishii leg.; Road between Naka-dokanbori and Simo-dokanbori, Sep. 18, 1997, 10 ♀ (paratypes, 4.1–5.7mm in body length, NSMT Cr-13541, TOYA Cr-12836–12837), N. Nunomura leg.; Fukiage, Ikejiri, Oct. 8, 1998, 2 ♀ (paratypes, 3.6–4.1mm in body length, NSMT Cr-13542), N. Nunomura leg.; Kami-dokanbori, Mikenosoko-kita, June 8, 1998, 2 ovig. ♀ (paratypes, 5.3–5.4 mm in body length, TOYA Cr 12838–12839), N. Nunomura leg.

Description. Body 2.1 times as long as wide. Color brown with many wide, pale irregular patterns on dorsal side. Antenna also brown. Lateral lobes well developed, rectangular. Medial process triangular, with a pair of vertical projections above vertex. Eyes, each eye with 10 ommatidia. Pleotelson triangular, without lateral concavities. Antennula: terminal segment with 8 short aesthetascs at tip. Antenna long, reaching middle part of pereonite 2, brown in color; mutual length of 2 flagellar segment is 11 : 25. Right mandible: pars incisiva 3-toothed; lacinia mobilis 2-toothed; 3 hairy setae; processus molaris represented by a tuft of setae. Left mandible: pars incisiva 3-toothed; lacinia mobilis 3-toothed; 2 hairy setae; processus molaris represented by a tuft of setae. Maxillula: outer lobe with 10 simple teeth, four outer teeth stouter, inner six ones slenderer. Maxilla wide, with many setae. Maxilliped: endite rectangular, with 3 spurs on outer distal area and palp. Positions of noduli lateralis are as follows:

	d/c	b/c
1	0.22	0.61
2	0.13	0.53
3	0.12	0.32
4	0.16	0.43
5	0.14	0.15
6	0.18	0.11
7	0.32	0.06

Pereopod 1: basis 2.8 times as long as wide, with a seta at inner distal angle; ischium with 9–10 setae on inner margin and a long seta at outer angle; merus 13–14 long setae on inner margin, 4–5 setae on outer margin; carpus as long as merus, with many long setae on inner margin; propodus with many short setae on basal half of inner margin, 2 setae on distal half of inner margin, and 13–15 short setae on outer margin; dactylus. Pereopod 2: basis 3.1 times as long as wide; ischium with 2 setae on inner margin; merus 28–30 long setae on inner margin and 4–7 setae on outer margin; carpus 1.4 times as long as merus, with many long setae on inner margin; propodus with 3 setae on distal half of inner margin, 12–14 short setae

on outer margin. Pereopod 3: basis 3.5 times as long as wide, with 5 short setae on inner margin; ischium with 5 setae on inner margin and 2 setae on outer margin; merus with 20 setae on inner margin; carpus 26-27 setae on inner margin, distal one longer than the others; propodus with 6 setae on inner margin. Pereopod 5: basis 2.6 times as long as wide; ischium about $\frac{3}{5}$ as long as basis, with 5 setae on inner margin; merus with 8 setae; carpus 6 setae on inner margin and 3 setae on distal margin; propodus with 4-5 setae on inner margin. Pereopod 6: basis with 7-8 setae on inner margin and 3 setae at inner distal angle; ischium with 12-14 short setae on inner margin and 4 short setae on outer area; merus 12 setae on inner area and 10 setae on outer margin; carpus 13-14 setae on inner margin and 3 setae on distal margin; propodus with 10 setae on inner margin. Pereopod 7: basis 2.9 times as long as wide, with 12 short setae on inner margin and a longer seta at inner distal angle; ischium 10-12 short setae on inner margin and a long seta at sternal end; merus with 17-18 setae on inner margin; carpus with 15-17 setae on inner margin and a long seta at outer distal angle; propodus with 5 setae on inner margin. Penes fusiform, with pointed tip. Pleopod 1: endopod straight, distal area bends outwards, with a series of tiny spinules; exopod with a shallow and small concavity of outer margin of near distal end. Pleopod 2: basis short; endopod straight, tapering toward tip; exopod triangular with 12 short setae on distal margin. Uropod: basis square; endopod 1.5 times as long as exopod.

Etymology. Nebulosus= hazy in Latin, the color of dorsal surface looks like hazy sky.

Distribution. Type locality.

Remarks. The present new species is most closely allied to *Lucasioides minatoi* (Nunomura, 1987) from Wakayama Prefecture, but separated from the latter by the following features: (1) semi-circular exopod of male first pleopod 7, (2) shorter exopod of male second pleopod, (3) shorter teeth on outer lobe of maxillula, (4) single seta-like processus molaris of left mandible, (5) longer basis of pereopod 7, and (6) longer setae on pereopod 7. The present new species is also closely allied to *L. hachijoensis* (Nunomura, 1987) from Hachijo Island, but separated by the following features: (1) irregular paler patterns on dorsal surface, (2) ratio of two flagellar segment, (3) hemicircular exopod on male first pleopod, (4) narrower body shape, (5) presence of more setae on pereopods, (6) processus molaris of left mandible, (7) shorter teeth on outer lobe of maxillula, and (8) shorter endopod of male pleopod 2. Oviparous female with 6-7 eggs (Their body length are 5.3–5.4mm).

Lucasioides sp.

(Fig. 6)

Specimens examined. Fukiage-nishidori, south, 1 ♂ (5.2mm in body length), and 1 ♀ (6.2 mm in body length), Fukiage, Apr. 24, 1996, N. Nunomura leg.

Description. Male. Body 2.2 times as long as wide. Color pale brown on dorsal side. Eyes small, each eye with 7-8 ommatidia. Pleotelson triangular, with a pair of shallow concavities on both margins. Antennula short; terminal segment with 4-5 short aesthetascs at tip. Antenna, reaching posterior margin of pereonite 2. Mutual length of 2 flagellar segments being 2:5. Right mandible: pars incisiva 3-toothed; lacinia mobilis weakly 2-toothed; 5-plumose setae; processus molaris represented by a single tuft of setae; Left mandible: pars incisiva 3-toothed; lacinia mobilis 3-toothed; 2 setae; processus molaris represented by a single tuft of setae. Maxillula: outer lobe with 10 simple teeth at tip, outermost one obviously longer than the others. Maxilliped: endite rectangular, with 2 spurs on outer distal area and palp. Positions of noduli lateralis are as follows:

	d/c	b/c
1	0.38	0.17
2	0.31	0.60
3	0.14	0.54
4	0.24	0.71
5	0.49	0.78
6	0.17	0.20
7	0.28	0.17

Pereopod 1: basis relatively long, 3.9 times as long as wide, with 3-4 setae on both margins ; ischium with 2 relatively long setae on-outer margin; merus with many setae on inner margin; carpus with many setae on inner margin distal some setae bifurcated one; propodus a little shorter than carpus, with several

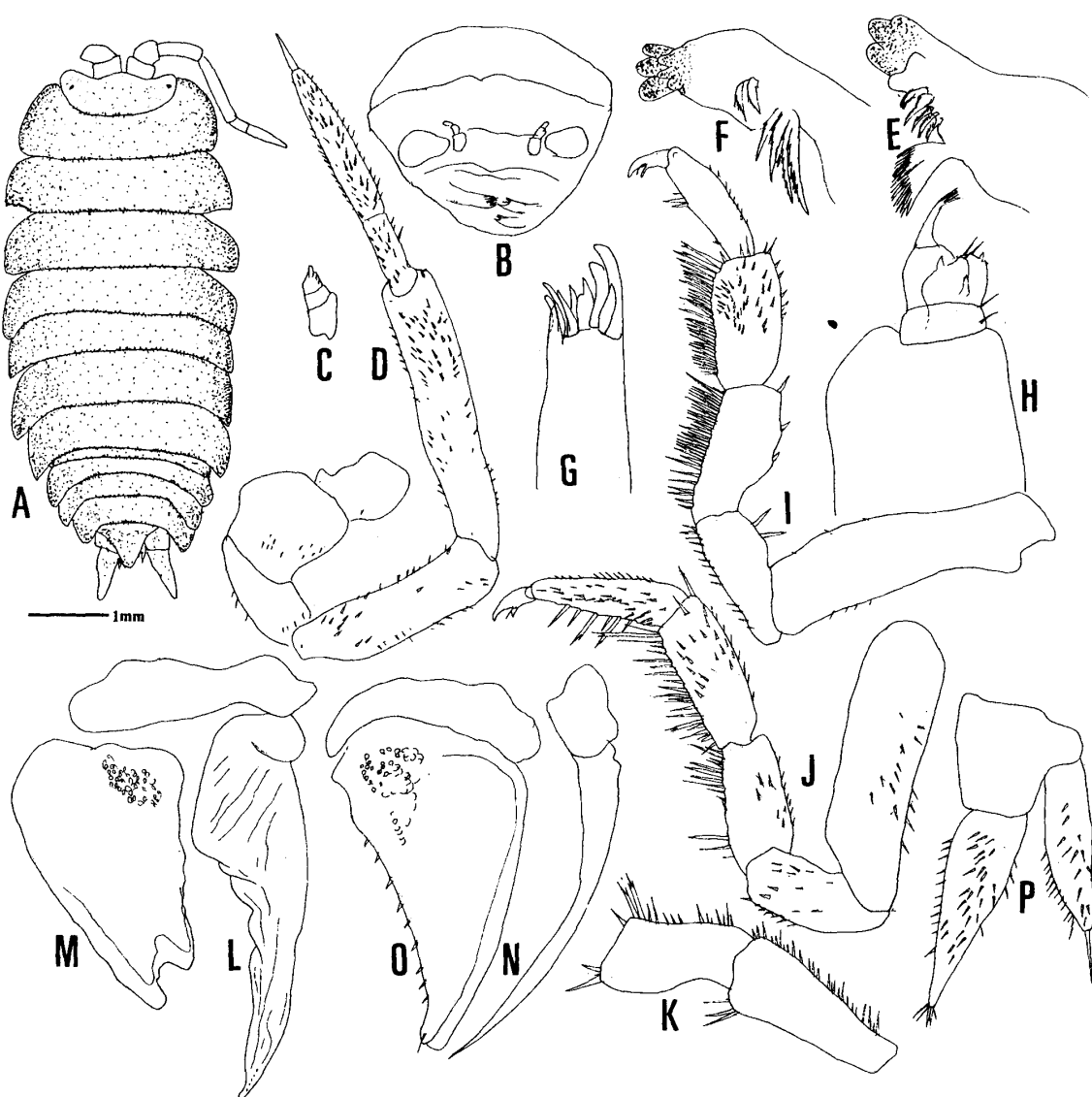


Fig. 6. *Lucasioides* sp., ♂. A: Dorsal view. B: Anterior view of cephalon. C: Antennule. D: Antenna. E: Right mandible. F: Left mandible. G: Outer lobe of maxillula. H: Maxilliped. I: Pereopod 1. J: Pereopod 2. K: Pereopod 7. L: Endopod of male pleopod 1. M: Exopod of the same. N: Endopod of male pleopod 2. O: Exopod of the same. P: Uropod.

setae on inner margin. Pereopod 2 : basis rectangular, 3.3 times as long as wide; ischium half length of basis, with 7-8 setae on inner margin ; merus as long as ischium, 12 with longer and 5-6 shorter setae on inner margin; carpus a little longer than merus, with many long setae on inner margin, distal one is longest and bi-furcated; propodus with 6 setae, 2 of which are bifurcated. Pereopod 7: ischium spread toward the tip, with a seta on outer margin; merus with a series of setae, distal two are long and tri-furcated. Pleopod 1: endopod straight; exopod rectangular and slightly tapering towards tip, and distal margin with a semi-circular concavity. Pleopods 2: basis rectangular; endopod slender, slightly exceeded beyond exopod; exopod triangular, with 9 short setae on distal margin. Uropod: basis a little shorter than wide; endopod 1.8 times as long as basis, with a tuft of setae at tip; exopod 4/5 as long as endopod, with a tuft of setae at tip.

Distribution. This species is found only from the Imperial Palace.

Remarks. This species is allied to *Lucasioides minatoi* (Nunomura, 1987) reported from the Kii Peninsula, but separated from the latter by the following features; (1) presence of concavity on the exopod of male first pleopod, (2) nearer position of noduli lateralis on pereonal somites 3-4, (3) rounded tip of pleotelson, (4) longer pereopods, (5) bigger eyes. This species is also allied to *L. kobarii* (Nunomura, 1987) from northern Kanto, but separated from the latter by the following features; (1) presence of concavity on the exopod of male first pleopod, (2) nearer position of noduli lateralis on pereonal somites 2-4, (3) all the teeth on outer lobe of maxillula, (4) bigger eyes. Unfortunately no specimens with complete appendages have caught, so that, I refrained from establishing a new species.

***Mongoloniscus maculatus* (Iwamoto, 1943)**

Porcellio maculatus Iwamoto, 1943, pp. 25-26, fig. 13.

Nagurus maculatus: Nunomura, 1987, pp. 26-28, fig. 111.

Mongoloniscus maculatus: Nunomura, 1999, p 622

Specimens examined. Fukiage, Sakurabayashi, Mar. 11, 1998, 1 ♀, S. Nomura leg.; Fukiage, Ikejiri, 6 ♀, Oct. 8, 1997, N. Nunomura leg.; Fukiage, Chushunkaku-ato, May 8, 1997, 1 ♀, N. Nunomura leg.; Naka-dokanbori, Mar. 21, 1997, 7 ♀, N. Nunomura leg.; Path between Naka-dokanbori and Shimo-dokanbori, Sep. 18, 1997, 1 ♂ 65 ♀, N. Nunomura leg.

Distribution. Central Japan: Kanto, Hokuriku through Kinki District (Nunomura, 1987, 1999).

***Mongoloniscus masahitoi* (Nunomura, 1987)**

Protrpcheoniscus masahitoi Nunomura, 1987, pp. 46-48, fig. 121.

Mongoloniscus masahitoi: Nunomura, 1999, p 622.

Specimens examined. Fukiage, 2 ♂ 5 ♀, Prince Masahito leg.; Fukiage, Hakuchou-bori, Oct. 8, 1997, 7 ♂, N. Nunomura leg.

Distribution. The species have been recorded from Southern Kanto: the Imperial Palace and the Miura Peninsula (Nunomura, 1987, 1999).

***Mongoloniscus katakurai* (Nunomura, 1987)**

Nagurus katakurai Nunomura, 1987, pp. 28-30, fig. 112.

Mongoloniscus katakurai: Nunomura, 1999, p 621

Specimens examined. Fukiage, Kajuen, May 1, 1996, 7 ♂5 ♀, N. Nunomura leg.; Oomichi, May 17, 1997, 2 ♂1 ♀, N. Nunomura leg.; Goseiken, Sep. 18, 1997, 1 ♂15 ♀, N. Nunomura leg.; Kami-dokanbori, Mar. 17, 1997, 3 ♂1 ♀, N. Nunomura leg.; Naka-dokanbori, May 17, 1997, 1 ♂1 ♀ N. Nunomura leg.; Road between Naka-dokanbori and Shimo-dokanbori, 1 ♂26 ♀, Sep. 26, 1997, N. Nunomura leg.

Distribution. Southern Kanto, central Japan (Nunomura, 1987, 1999).

***Mongoloniscus vannamei* (Arcangeli, 1927)**

Porcellio vannamei Arcangeli, 1927, pp. 243, fig. 8.

Nagurus vannamei: Nunomura, 1987, pp. 4–6, fig. 101.

Mongoloniscus vannamei: Nunomura, 1999, p. 622

Specimens examined. Garden of Imperial Palace, Mar. 4, 1976, 2 ♂3 ♀, Prince Masahito leg.

Distribution. Central and Southern Japan: Tokyo through Kumamoto (Nunomura, 1987, 1999).

Family Porcellionidae

***Porcellio dilatatus* Brandt, 1833**

Porcellio dilatatus Brandt, 1833, p. 78, pl. 5, fig. 6.

Porcellio dilatatus: Nunomura, 1987, pp. 70–73, fig. 133.

Specimens examined. Goseiken, 3 ♀, Mar. 17, 1997, N. Nunomura leg.

Distribution. Europe, North America, Japan (Yokohama, Tokyo, and Chiba) (Nunomura, 1990, 1999).

***Porcellionides pruinosus* (Brandt, 1833)**

Porcellio pruinosus Brandt, 1833, p. 19.

Metoponorthus pruinosus: Hilgendorf, 1893, p. 154.

Porcellionides pruinosus: Arcangeli, 1927, p. 54; Nunomura, 1987, pp. 73–76, fig. 135.

Specimens examined. Fukiage, Higashi-yamabuki-iraka, Apr. 24, 1996, 1 ♀, N. Nunomura leg.; Goseiken, Apr. 24, 1996, 1 ♀, N. Nunomura leg.; Goseiken, Mar. 17, 1997, 1 ♂7 ♀, N. Nunomura leg.; Goseiken, Sep. 18, 1997, 1 ♂, N. Nunomura leg.; Goseiken, June 8, 1998, 4 ♀, N. Nunomura leg.; Kami-dokanbori, Mar. 17, 1997, 1 ♀ N. Nunomura leg.; Kami-dokanbori, north of Miken-no-soko, June 8, 1998, 1 ♀, N. Nunomura leg.; Ohmichi, Sagyousho, June 8, 1998, 1 ♂6 ♀, N. Nunomura leg.

Distribution. Cosmopolitan (Nunomura, 1987, 1999).

Family Armadillidae

***Venezillo obscurus* (Budde-Lund, 1885)**

Armadillo obscurus: Budde-Lund, 1885, p. 285

Sphaerillo obscurus: Nunomura, 1990, pp. 11–13, fig. 142.

Venezillo obscurus: Nunomura, 1999, p. 624

Specimens examined. Fukiage, Sakurabayashi, Mar. 11, 1998, 28 ♂28 ♀, S. Nomura leg.; Fukiage, Sakurabayashi, Mar. 2, 2000, 6 ♂16 ♀, K. Ishii leg.; Fukiage, Sakurabayashi, Mar. 11, 1998, 5 ♂22 ♀, K. Ishii leg.; Fukiage, Daihon'ei-ato, Mar. 11, 1998, 11 ♂15 ♀, K. Ishii leg.; Fukiage, main gate, Oct. 10, 14, 1997, 20 ♂17 ♀, K. Ishii leg.; Fukiage, seimon (main gate), July 9, 1997, 12 ♂31 ♀, K. Ishii leg.; Fukiage,

Ohmiyagosho, southeast, Apr. 24, 1996, 2♂1♀, N. Nunomura leg.; Fukiage, east of Kanbakutei, June 12, 1996, 2♀, N. Nunomura leg.; Fukiage, Chushunkaku-ato, 1♀, Apr. 24, 1996, N. Nunomura leg.; Fukiage, Chshunkaku-ato, Jan. 7, 1998, 12♂3♀, K. Ishii leg.; Fukiage, Chushunkaku-ato, 12♀, Oct. 1997, N. Nunomura leg.; Fukiage, Chushunkaku-ato, 5♀, Oct. 18, 1997, N. Nunomura leg.; Fukiage, Chushunkaku-nishi, May 15, 1996, 1♂7♀, N. Nunomura leg.; Fukiage, stream in front of Kanbakutei, July 9, 1979, 12♂17♀, K. Ishii leg.; Fukiage, middle area of Nishidori, Apr. 24, 1996, 1♀, N. Nunomura leg.; Fukiage, Nishidori, May 15, 1996, 3♀4yy, N. Nunomura leg.; Fukiage, middle area between entrance and Jujiro, May 15, 1996, 1♀, N. Nunomura leg.; Fukiage, near the entrance, Mar. 17, 1997, 1♂1♀, N. Nunomura leg.; Fukiage, Ooibaba-ato, Oct. 8, 1997, 1♂2♀, N. Nunomura leg.; Fukiage, main stream of Kanbakutei, Mar. 17, 1997, 3♂1♀, N. Nunomura leg.; Fukiage, east of main gate, May 15, 1997, 3♂2♀, N. Nunomura leg.; Fukiage, east of main gate, Mar. 17, 1997, 2♀, N. Nunomura leg.; Fukiage, east of main gate, June 12, 1996, 2♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Apr. 24, 1996, 7♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Jan. 7, 1998, 12♂20♀, K. Ishii leg.; Fukiage, Kanbakutei, Mar. 17, 1997, 1♂5♀, N. Nunomura leg.; Fukiage, Ohtaki, Oct. 8, 1997, 2♂6♀, N. Nunomura leg.; Fukiage, Sakurabayashi, Oct. 14, 1998, 6♂11♀, K. Ishii leg.; Fukiage, Daihon'ei-ato, Oct. 14, 1998, 4♂15♀, K. Ishii leg.; Fukiage, Ikejiri, Oct. 18, 1997, 1♂12♀19yy, N. Nunomura leg.; Fukiage, south of Nishi-dori, Oct. 8, 1997, 1♂4♀, N. Nunomura leg.; Fukiage, Hakucho-bori, Oct. 8, 1997, 1♀12y, N. Nunomura leg.; Fukiage, north of Enkatei, May 15, 1996, 1♂2♀, N. Nunomura leg.; Fukiage, south of Nishidori, Mar. 17, 1996, 3♂6♀10yy, N. Nunomura leg.; Fukiage, Sakurabayashi, Oct. 8, 1997, 1♂1♀, N. Nunomura leg.; Fukiage, main gate, Sep. 18, 1997, 3yy, N. Nunomura leg.; Fukiage, Hakucho-bori, June 12, 1996, 1♂6♀, N. Nunomura leg.; Fukiage, near Kankatei, Oct. 18, 1997, 2♂6♀, N. Nunomura leg.; Fukiage, bamboo stand, Nov. 20, 1996, 2♂6♀, S. Nomura leg.; Fukiage, waterfall side, July 26, 1996, 2♂4♀1y, S. Nomura leg.; Fukiage, bamboo stand, June 12, 1996, 7♂20♀, S. Nomura leg.; Fukiage, evergreen forest, June 24, 1996, 21♂20♀, S. Nomura leg.; Fukiage, evergreen forest, Nov. 20, 1996, 12♂32♀, S. Nomura leg.; Fukiage, Mar. 11, 1998, 2♂24♀, K. Ishii leg.; Kami-dokanbori, Mar. 7, 1998, 2♂4♀, S. Nomura leg.; Kami-dokanbori, June 8, 1998, 3♀, N. Nunomura leg.; Naka-dokanbori, area along the Naien, Mar. 21, 1997, 15♂27♀, K. Ishii leg.; Naka-dokanbori, Shin'michi, July 21, 1997, 12♂22♀, K. Ishii leg.; Naka-dokanbori, southwest slope, Apr. 24, 1996, 1♀, N. Nunomura leg.; Naka-dokanbori, Shin'michi, July 21, 1997, 1♂14♀, K. Ishii leg.; Naka-dokanbori, east new road, Sep. 18, 1997, 7♀6yy, N. Nunomura leg.; Naka-dokanbori, June 12, 1996, 2♂5♀, N. Nunomura leg.; Shimo-dokanbori, Apr. 24, 1996, 23♂19♀, S. Nomura leg.; Between Naka-dokanbori and Ohmiya-gosho, Sep. 18, 1997, 2♀, N. Nunomura leg.; Bamboo stand in front of Gosho, Nov. 20, 1996, 1♂12♀, S. Nomura leg.; Bamboo stand in front of Gosho, Oct. 14, 1998, 5♀, K. Ishii leg.; Bamboo stand in front of Gosho, July 23, 1998, 1♂4♀, K. Ishii leg.; Bamboo stand in front of Gosho, Mar. 11, 1998, 1♂7♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 21, 1997, 17♂32♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 11, 1998, 7♂7♀, K. Ishii leg.; Gosho, *Quercus acutissima* forest, Oct. 14, 1998, 11♂43♀, K. Ishii leg.; Goseiken, Sep. 18, 1997, 1♂2♀, N. Nunomura leg.

Distribution. Kanto District, central Japan (Nunomura, 1990, 1999).

Family Armadillidae

Armadillidum vulgare (Latreille, 1804)

Armadillo vulgare Latreille, 1804, p 48.

Armadillidum vulgare: Nunomura, 1990, pp. 3–5, fig. 137.

Specimens examined. Fukiage, Sakurabayashi, Oct. 8, 1997, 1 ♂, N. Nunomura leg.; Fukiage, Ohmiya-gosho, entrance no.1, Apr. 24, 1996, 1 ♂, N. Nunomura leg.; Fukiage, Fukiage-nishidori, chuo, May 17, 1997, 3 ♂, N. Nunomura leg.; Fukiage, Fukiage-nishidori, south, 1 ♂ 1 ♀, Oct. 18, 1997, N. Nunomura leg.; Fukiage, Ohtaki-ue, south, 1 ♂ 1 ♀, Oct. 18, 1997, N. Nunomura leg.; Fukiage, seimon (main gate), July 9, 1979, 3 ♀, K. Ishii leg.; Fukiage, Daihon'ei-ato, Mar. 11, 1998, 1 ♂ 2 ♀, K. Ishii leg.; Fukiage, Daihon'ei-ato, Oct. 18, 1998, 1 ♀, K. Ishii leg.; Fukiage, along the stream of Kanbakutei, Mar. 17, 1997, 1 ♀, N. Nunomura leg.; Fukiage, between the entrance and cross, May 15, 1996, 1 ♀, N. Nunomura leg.; Fukiage, bamboo bed, Nov. 20, 1996, 1 ♂ 10 ♀, S. Nomura leg.; Fukiage, bamboo bed, June 12, 1996, 1 ♂ 6 ♀, S. Nomura leg.; Kami-dokanbori, Mar. 11, 1998, 2 ♂ 1 ♀, K. Ishii leg.; Kami-dokanbori, Mar. 7, 1998, 5 ♂ 10 ♀, S. Nomura leg.; Kami-dokanbori, east slope, north of Miken-no-soko, June 8, 1998, 2 ♀, N. Nunomura leg.; Kami-dokanbori, June 12, 1996, 1 ♂, N. Nunomura leg.; Kami-dokanbori, southeast slope, Apr. 24, 1996, 1 ♂ 3 ♀, N. Nunomura leg.; Kami-dokanbori, north of Miken-no-soko-kita, 3 ♂ 2 ♀, June 8, 1998, N. Nunomura leg.; Kami-dokanbori, southeast, Mar. 17, 1997, 1 ♂ 1 ♀, N. Nunomura leg.; Kami-dokanbori, southeast, June 12, 1996, 1 ♂, N. Nunomura leg.; Kami-dokanbori, south, June 12, 1996, 1 ♂ 1 ♀, N. Nunomura leg.; Kami-dokanbori and Shimo-dokanbori, Sep. 18, 1997, 1 ♂ 1y, N. Nunomura leg.; Naka-dokanbori, Naien-zoi, Mar. 25, 1997, 1 ♀, K. Ishii leg.; Naka-dokanbori, Sep. 18, 1997, 1 ♀, N. Nunomura leg.; Goseiken, west side, 4 ♀, Sep. 18, 1997, N. Nunomura leg.; Goseiken, 4 ♂ 1 ♀, Sep. 18, 1997, N. Nunomura leg.; Goseiken, Apr. 24, 1996, 1 ♂, N. Nunomura leg.; Goseiken, 21 ♀, Sep. 18, 1997, N. Nunomura leg.; Goseiken, south side, Mar. 17, 1997, 6 ♂, N. Nunomura leg.; Bamboo stand in front of Gosho, Mar. 11, 1998, 2 ♀, K. Ishii leg.; Bamboo stand in front of Gosho, Oct. 14, 1998, 1 ♂ 4 ♀, K. Ishii leg.; Laurel forest in front of Gosho, Mar. 11, 1998, 5 ♀, K. Ishii leg.; Bamboo stand in front of Gosho, Nov. 20, 1996, 1 ♀, N. Nunomura leg.; Bamboo stand in front of Gosho, June 12, 1996, 2 ♂ 4 ♀, N. Nunomura leg.; Oudori, Mar. 17, 1997, 2 ♀, N. Nunomura leg.; Oudori, Higashi-sagyoujo, June 8, 1998, 13 ♂ 2 ♀, N. Nunomura leg.; Kunaichou-bunsitsu, Oct. 16, 1975, 2 ♂ 1 ♀, Prince Masashito leg.; Kunaichou-bunsitsu, 1 ♀, May 18, 1976, Prince Masahito leg.

Distribution. Cosmopolitan.

Order Amphipoda

Suborder Gammaridea

Family Talitridae

Platorchestia humicola (von Martens, 1868)

Orchestia humicola von Martens, 1868, pp. 56–58.

Platorchestia humicola; Morino, 1991, p. 65, fig. 231-1.

Specimens examined. Fukiage, Sakurabayashi, Mar. 11, 1998, 7exs, S. Nomura leg.; Fukiage, Nishidori (South), Oct. 8, 1997, 1ex, N. Nunomura leg.; Fukiage, Ikejiri, Oct. 8, 1997, 1ex, N. Nunomura leg.; Fukiage, Chushunkaku-ato, Oct. 8, 1997, 1ex, N. Nunomura leg.; Fukiage, Ooibaba, Oct. 8, 1997, 2exs, N. Nunomura leg.; Fukiage, Kankatei, Oct. 18, 1997, 1ex, N. Nunomura leg.; Fukiage, Ohtaki, Oct. 18, 1997, 4exs, N. Nunomura leg.; Fukiage, Hakucho-bori, Oct. 8, 1997, 11exs, N. Nunomura leg.; Fukiage, Nishi-dori (middle), Mar. 17, 1997, 1ex, N. Nunomura leg.; Fukiage, Nishi-dori, May 15, 1996, 2exs, N. Nunomura leg.; Fukiage, Ohmiya-gosho, entrance, Sep. 18, 1997, 1ex, N. Nunomura leg.; Fukiage, Ohmiya-gosho, east of entrance, Mar. 17, 1997, 1ex, N. Nunomura leg.; Fukiage, Ohmiya-gosho, entrance, May 15, 1996, 1ex, N. Nunomura leg.; Fukiage, Kanbaku-tei, Mar. 17, 1997, 1ex, N. Nunomura leg.; Fukiage, Hakucho-bori, Oct. 8, 1997, 6exs, N. Nunomura leg.; Fukiage, Hakucho-bori, June 12,

1996, 2exs, N. Nunomura leg.; Fukiage, east of Kajuen (Orchard), May 15, 1996, 3exs, N. Nunomura leg.; Fukiage, Ikejiri, Oct. 8, 1997, 1ex, N. Nunomura leg.; Fukiage, Sakurabayashi, Oct. 8, 1997, 1ex, N. Nunomura leg.; Fukiage, Sakurabayashi, Apr. 24, 1996, 2exs, N. Nunomura leg.; Fukiage, east of Kanbakutei, June 12, 1996, 3exs, N. Nunomura leg.; Fukiage, Kanbakutei, Mar. 17, 1997, 7exs, N. Nunomura leg.; Fukiage, west of Kanbakutei, May 15, 1996, 4exs, N. Nunomura leg.; Fukiage, Ohtaki, Oct. 8, 1997, 7exs, N. Nunomura leg.; Fukiage, near Hakuchou-bori, 2exs., N. Nunomura leg.; Goseiken, June 8, 1998, 5exs, N. Nunomura leg.; Goseiken, Sep. 18, 1997, 9exs, N. Nunomura leg.; Goseiken, southwest, Sep. 18, 1997, 1ex, N. Nunomura leg.; Bamboo stand in front of Goshō, June 12, 1996, 2exs, N. Nunomura leg.; Kami-dokanbori (northeast), June 12, 1996, 1ex, N. Nunomura leg.; Naka-dokanbori, Sep. 18, 1997, 1ex, N. Nunomura leg.; East slope of Naka-dokanbori, Sep. 18, 1997, 1ex, N. Nunomura leg.; Road between Naka-dokanbori and Shimo-dokanbori, Sep. 18, 1997, 4exs, N. Nunomura leg.; Oudori, Mar. 17, 1997, 1ex, N. Nunomura leg.

Distribution. Honshu (Morino, 1991)

Platorchestia japonica (Tattersall, 1922)

Talorchestia japonica Tattersall. 1922, pp. 452–453, pl. 21, figs. 1–10.

Platorchestia japonica: Bousfield, 1982, p. 26.

Specimens examined. Fukiage, Kankatei, May 15, 1996, 3exs, N. Nunomura leg.; Fukiage, Kankatei, Oct. 18, 1997, 4exs., N. Nunomura leg.; Fukiage, Chushunkaku-ato, May 15, 1996, 1ex, N. Nunomura leg.; Fukiage, Nishi-dori (north), 4exs., N. Nunomura leg.; Goseiken, Sep. 18, 1997, 6 exs, 6. N. Nunomura leg.

Distribution. Hokkaido through Okinawa (Morino, 1991).

要 約

皇居は東京都心に残された貴重な自然環境であり、豊かな林が見られるところから、陸産フクロエビ上目甲殻類においても、東京本来の種の残存を含め多様な種の生息が考えられる。従来、等脚目（ワラジムシ目）については常陸宮正仁殿下の採集になった標本を調べた Nunomura (1987) が *Protracheoniscus masahitoi* と *P. vannamei*（現在では両種とも *Mongoloniscus* 属として扱われている）を報告したのみであった。しかし、1996–2000 年に行われた国立科学博物館による皇居の生物相調査に際して、16 種（うち、4 種は新種）を記録した。新種として記載されたのは *Styloniscus japonicus*（新称：ヤマトクキワラジムシ）*Papuaphiloscia alba*（新称：ヤマトミナミワラジムシ）、*Ludasioidea tokyoensis*（新称：トウキョウハヤシワラジムシ）、*Lucasioidea nebulosus*（新称：オボロハヤシワラジムシ）である。*Styloniscus japonicus* が属する *Styloniscidae* クキワラジムシ科（新称）はわが国からの初記録である。

References

- Arcangeli, A., 1927. Isopodi terrestri raccolti nell' Estremo Oriente dal Filipino Silvestri. *Boll. Lab. Zool., Gen. Agr. R. Scoul. Agroicolt. Portici*, 20: 211–269.
- Bousfield, E. L., 1982. The amphipod superfamily Talitroidea in the northeastern Pacific region. 1. Family Talitridae: Systematics and distributional ecology. *Natn. Mus. Sci. Publ. Biol. Oceanogr.*, 11: 1–73.
- Budde-Lund, X., 1879. Prospectus generum specierumque Crustaceorum Isopodum terrestrium, pp. 1–10. Copenhagen.
- Brandt, J. F., 1833. Conspectus Monographiae Crustaceorum Oniscodorum Latreillii. *Bull. Soc. Imp. Nat., Moscow*, 6: 171–193.

- Hilgendorf, H., 1893. Die von Herrn Dr. Buttner in Togolande gesammelten Onisciden und zwei neue Macruren. *Sber. Ges. nat. Freunde Berl.*, x: 152–157.
- Iwamoto, K., 1943. [Some terrestrial Isopoda from Japan]. *Dobutsu oyobi Shokubutsu [Animals and Plants]*. 11: 17–32. (In Japanese.)
- Latreille, P. A., 1804. Histoire Naturelle Generale et Particuliere des Crustaces et des Insectes. Paris, 7: 1–413.
- Martens, E., von, 1868. Ueber einige ostasiatische Susswasserthiere. *Arch. Nat.*, 34: 1–64.
- Morino, H., 1991. Amphipoda. In Aoki, J. (ed.) , *Pictorial Keys to Soil Animals of Japan*, pp. 65–66. Tokai University Press, Tokyo. (In Japanese.)
- Nunomura, N., 1983. Studies on the terrestrial isopod crustaceans in Japan, I. Taxonomy of the families Ligiidae, Trichoniscidae and Olibirniidae. *Bull. Toyama Sci. Mus.*, 5: 23–68.
- Nunomura, N., 1987. Studies on the terrestrial isopod crustaceans in Japan, IV. Taxonomy of the Trachelipidae and Porcellionidae. *Bull. Toyama Sci. Mus.*, 11: 1–76.
- Nunomura, N., 1990. Studies on the terrestrial isopod crustaceans in Japan, V. Taxonomy of the families Armadillidiidae, Armadillidae and Tylidae. *Bull. Toyama Sci. Mus.*, 13: 1–58.
- Nunomura, N., 1999. Isopoda. In Aoki, J. (ed.) , *Pictorial Keys to Soil Animals of Japan*, pp. 569–625. Tokai University Press, Tokyo.
- Shculz, G. A., 1995. *Sinoniscus cavernicolus*, a new genus and species of terrestrial isopod crustacean from a cave in China (Styloniscidae: Oniscidea). *Proc. Biol. Soc. Washington*, 108: 201–206.
- Taiti, S. & F. Ferrara, 1988. Revision of the genus *Exalloniscus* Stebbing 1911 (Crustacea: Isopoda: Oniscidea). *Zool. J. Linn. Soc. Lond.*, 94: 339–377.
- Tattersall, W. M., 1922. Zoological results of a tour in the Far East. Amphipoda with notes on an additional species of Isopoda. *Mem. Asia. Soc. Bengal*, 6: 437–459, pls. 18–21.
- Vandel, A., 1952. Les trichoniscides (Crustaces-Isopodes) des h'emispher austral; leur place systematique; leur in rt biog ographique. *Mem. Mus. natn. Hist. nat., Paris*, (A, 6,) 1: 1–116.
- Vandel, A., 1970. Les isopodes terrestres et cavernicoles de l'Archipel Nippon (second memoires). *Bull. natn. Sci. Mus., Tokyo*, 13: 373–382.
- Verhoeff, K. W., 1918. Zur Kenntnis der Ligiiden Porcellionidae und Oniscidae. *Aufstts. Arch. Nat, S. A.* 24:100–169.